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ABSTRACT

The document includes five papers on the implications and applications of regeneration by the Regeneration Project, based in Emmaus, Pa. The first paper, "Regenerating America: Meeting the Challenge of Building Local Economies," (Medard Gabel) defines regeneration as economic recovery and growth, fostered by diversification within a local economy. The paper details the project's seven-step method for building or regenerating a local economy. The second paper, "The Nature of Regeneration: The Evolution of a Concept," (Ron Shegda, Gabel) offers philosophical background for the economic theory, borrowing terms from various disciplines. The paper also discusses the holistic thinking behind regeneration. The third paper, "The Regeneration Center: A Vortex for Local Economic Development," (Gabel) discusses plans for a center that would produce research, marketing surveys and perform outreach, networking, education, and business incubation. The paper also discusses financing and personnel for the center. The fourth paper, "Tools for Regeneration: Beyond the Bottom Line," (Ellen Pahl, Gabel) discusses work for evaluating and initiating local economic regeneration. The tools for such work include indexes, inventories, and market searches. The work should reach beyond "narrow economic concerns" to tie a local economy into natural systems, use of free time, and the creativity of local people. The last paper, "The Need for Pioneer Enterprises in Regeneration Zones," (Robert Rodale) supports the need for regeneration projects, especially in agriculture. The document includes charts, tables, a glossary of terms, and a list of regeneration project products. (TES)

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THE REGENERATION PROJECT

REGENERATING AMERICA

Meeting the Challenge of Building Local Economies

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REGENERATING AMERICA:

Meeting the Challenge of Building Local Economies

By

Medard Gabel, Ellen Pahl, Ron Shegda, Robert Rodale

The Regeneration Project
Rodale Press, Inc.
33 E. Minor St.
Emmaus, PA 18049

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PREFACE

The following five papers are an attempt to pull together an exciting and wide ranging conglomeration of ideas into a more coherent framework. This was done so that my and others enthusiasm for the implications and applications of the various concepts relating to "regeneration" could be made more understandable to friends, colleagues and other interested parties. Other purposes for this effort were to capture the research and development we have done in this area so far and to formulate a structure in which to place our continuing efforts at clarifying and evolving the philosophy, theory and methods of regeneration. Your comments on our efforts are not only welcome but will help a great deal in this task. Subsequent drafts of these, and additional papers, will incorporate your feedback.

The first four papers in this series were originally organized by simply dividing up our then known regenerative universe into the areas that seemed, to me, to make the most sense. In writing or editing these papers, I found that there are still other topics we need to cover, and as Bob Rodale makes clear in the fifth paper, there are still new vistas to discover within the new paradigm of regeneration.

This research and development is part of the job of The Regeneration project. Another part is to take these concepts and make them real. That is, we are in the business of forming partnerships with local communities and applying these concepts and tools to help communities improve their economic vitality.

If you would like to know more about what we can do for your local area, please contact us.

Medard Gabel
Director
The Regeneration Project

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REGENERATING AMERICA:

Meeting the Challenge of Building Local Economies

by

Medard Gabel

Paper 1: Overview, General Introduction

Second Draft, February, 1985

The Regeneration Project
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INTRODUCTION

America, already blessed with a vast abundance of natural resources, great economic wealth, and an inventive, entrepreneurial and scientific genius unparalled in history, is confronted by yet another great opportunity.

This opportunity, like our natural resources, lies waiting for the daring to extract from our environment. Unlike natural resources, this opportunity does not lie deep beneath the ground, but can be found, surprisingly, in nearly all our older industrial regions -- the so-called "rust belt" of the country -- as well as in our high unemployment sections wherever they are found, our rural, poverty stricken areas, and in our urban regions blighted with slow economic development. This great opportunity and resource is the challenge and potential of <u>regeneration</u>.

The opportunities for regeneration rests within all our older and decaying cities, industries and rural regions. These opportunities are a huge new market for American businesses, especially small businesses. They are, likewise, a tremendous boon to communities seeking to reverse economic stagnation.

What is regeneration? How can it strengthen a local economy? How can it generate more jobs in your region? How can it protect local businesses? How can it increase the markets for locally produced goods and services? How does it provide increased control over local resources? How can it increase a region's economic vitality and overall quality of life? These are essential questions and opportunities facing America.

The Regeneration Project is developing the answers to and opportunities embedded within these questions. More importantly, the Regeneration Project has developed a methodology that will allow any community to answer these questions and to set in motion the myriad of local actions needed to create a growing economic force in their community and region. The rest of this paper will examine the concept of regeneration and the approach that the Regeneration Project has developed for setting in motion local economic revitalization.

REGENERATION

Regeneration means "to restore to a previous condition; to improve." Biologically, it means "the replacement of lost or injured tissue, permitted by the ability of some cells to de-differentiate and develop in a new way." (For a more thorough discussion of this term, see Paper # 2, "The Nature of Regeneration.") What this means in the sense we are using the word, that is, in an economic development framework, is that economic recovery and growth are furthered by the ability of the local economy to de-specialize itself and produce a more diverse set of products.

Regenerative economic development is the building of a local economy out of local resources, businesses and markets. This process can take place without large infusions of outside financial assistance -- such as federal or state monies. Instead, the local marketplace provides the motive power for this economic development.

Regenerative development strengthens a local economy by

providing additional jobs, larger markets for locally produced goods and services, added incentives for the utilization of local resources, and increased amounts of money which stays in the area.

Regenerative development provides additional markets for locally produced goods and services by locating, through a series of sophisticated market searches, the local buyers of a particular product, their willingness to purchase locally, the quantity they would purchase and other relevant factors. Through these increased market opportunities, additional revenues and employment are generated. With the additional information about local natural and human resources, manufacturing capabilities, resource use and need, imports and technological options that a regenerative development project would entail, the community undertaking a regeneration project would have increased control over their own economic well being.

THE APPROACH

One of the basic tenets of the approach of the Regeneration Project is that regions can develop through "import substitution." That is, regions can grow by producing goods and services for local consumption that replace goods and services formerly imported into the region. This process keeps more money within the region to fuel further growth. The substitution of locally produced goods for imported items drives economic development in any given region. As a region produces more and more goods for its own needs -- thereby importing less of these same goods -- the region's economy grows. More money stays in the region -- because it goes to the local producer -- and has

a multiplier effect on the entire local economy.

The way this happens is that imports stimulate the market -- they create the need for certain products or services. The local economy -- if it is healthy -- can tap into this ready-made market by producing these needed goods and services. The local market is usually the largest market readily available to a producer and it is also the local market that can generate the capital that the local economy needs to grow.

Another of the basic tenets of the Regeneration Project is local control. Whatever is done in a region needs to be done or controlled by the people living in the region. Therefore, the basic ideas, goals and methods of building a local economy need to be transferred to the people of the region before the start of any development work.

THE METHOD

The Regeneration Project has developed a seven step methodology for regenerating or building a local economy in any region. The flow diagram on the next page illustrates these basic steps.

Step 1: Transfer the concepts, goals, methods and control of the Regeneration Project to local residents. This would involve a series of workshops and intensive training sessions followed by the formation of a core group of local residents who would form a Regeneration Zone Development Task Force. This Task Force would control and be responsible for establishing a Regeneration Center in their community. This Center would undertake the following activities:

Step 2: Determine the imports into a region. This would involve an inventory of the food, energy, materials, shelter, water and capital in-flow and out-flow from the region.

Sept 3 Determine the resource needs of the region's businesses, manufacturing facilities and general public for food, energy, materials and capital.

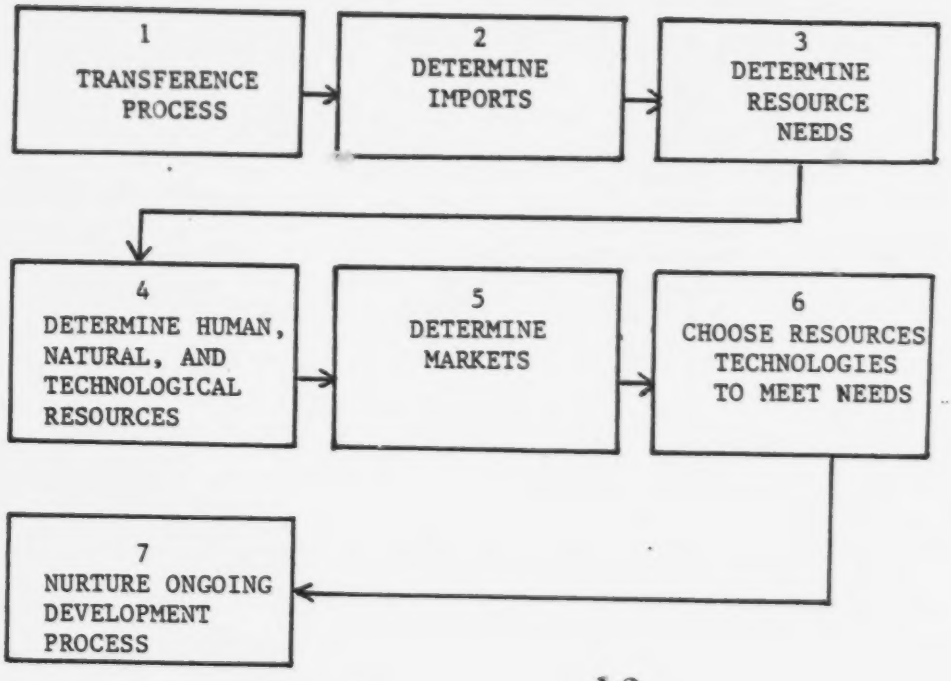
Step 4: Determine the natural and technological resources of the region. This would involve the inventory of the natural resources in a region such as land, water, crops, forests, coal, oil, metals, etc., and the technological capabilities in regional manufacturing plants and service facilities.

Step 5: Determine the markets for locally produced products and/or services that can be substituted for imports. This would involve market searches to local buyers of food, energy, healthcare, shelter, transportation, and financial services.

Step 6: Choose the specific technologies that could use local resources to produce products and/or services that can be substituted for imports. This would involve the matching of technologies from the Regeneration Technology Inventory with the unique needs and potentials of a region.

Step 7: Nurture the local regenerative economic development process through a local exchange and trading system, networking, new business incubation, etc.

REGENERATING LOCAL ECONOMIES



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These steps are keys to the success of a Regeneration Project in a region. Local ownership and having the right information about technology and local opportunities are essential. This information must meet the needs of the local people who are seeking to develop their region. This information, in the hands of those entrepreneurial people who seek it, will increase local economic activity.

Community leaders, foundations concerned with regional development and regional and local planners can best set in motion the process of regenerative economic development by viewing themselves as catalysts, not authorities, as facilitators, not directors, and as information collectors and disseminators who judge the success of their efforts by how many people are involved in the planning process.

The chart on the following page will give you an idea of the type of information needed and a way of organizing some of it. Column 1 refers to the general system in which a specific import belongs. Column 2 is a listing of all the imports into a region. Column 3 is the specific market identification tool that the Regeneration Project has developed to determine the size of the local market for locally produced goods and services that can be substituted for imported goods and services. Column 4 is the generic technology that could be used to substitute for an imported product or service. Column 5 lists the resources needed for import substitution. Column 6 contains the most important information: A listing of specific technologies and examples of the generic types. From this listing, the local entrepreneur or development organization can find the specific

Table 1 - OPPORTUNITIES IN LOCAL REGENERATIVE ECONOMIC DEVELOPMENT

1	2	3	4	5	6
SYSTEM	IMPORTS	MARKET DETERMINATION	GENERIC TECHNOLOGY FOR IMPORT SUBSTITUTION	RESOURCES NEEDED FOR IMPORT SUBSTITUTION	SPECIFIC TECHNOLOGY NEEDED TO BRING IT ABOUT/EXAMPLE
					Local vegetable farm: Hedgehog Hill Farm, East Sumner, ME
Food	Fish	AgMarket Search	Local fish production facility	Farmland, ponds	Local farmer: Rodale Aquaculture ponds: local wholesaler
Food	Fish	AgMarket Search	Waste heat/ fish farm facility	Waste heat	New Jersey Public Service Electric and Gas Co's Limestone Springs fishing preserve is waste heat and aquaculture facility at Richland, PA
Food	Food Marketing	AgMarket Search	Locally owned food stores		Weiss Markets Inc., Sunbury, PA
Food	Processed vegetables	AgMarket Search	Vegetable processing plant		
Food	Meat	AgMarket Search	Local cattle, pig, poultry farm Local meat packing plant	Farm and pasture land	Clearview Farms, Rochester Mills, PA
Food	Processed meat	AgMarket Search	Local meat processing plant		Arnegast, Bastian, Inc., Allentown, PA
Food	Fertilizers	Farm Search	Sludge/sludge applicator	Waste products/sludge	Dale Crouse, Agorganic, Inc., Maranoy Township, NJ Learino Foods, Waverly, NY
Energy/food	Heating fuel Vegetables	Shelter Search	Attached Solar Greenhouse	Sunlight	Attached solar greenhouse program, Bill Dowe, Arkansas
Energy	Heating fuel	Energy Search	Energy conservation, weather stripping caulking, etc.		Davis, CA
Energy	Heating fuel	Energy Search	Local wood /wood stove	Forests	New England
Energy	Heating fuel	Energy Search	Solar retrofit	Sunlight	Solarizing Your Present Home, Rodale Press, Inc.
Energy	Gasoline	Energy Search	Methanol	Farmland, wood and agricultural wastes	Fermentation
Energy	Electricity	Energy Search	Small scale co-generation		Fiat Cogeneration Unit, Cummins Cogeneration
Energy	Electricity	Energy Search	Small scale hydro	Rivers	Minigenerator, Nanjing Farm Machinery Research Institute, China; Hydro Charger generator, Nevada City, CA
Energy	Natural gas	Energy Search	Local natural gas or methane	Natural gas, organic wastes	Methane digester, Col. James Keel, Harrison, AK; Debre Zeit Research Station, Ethiopia
Housing	Mobile homes	Shelter Search	Self-help housing	Families,contractors, materials	Oakland, CA; Hartford,CT
Housing	Mobile homes	Shelter Search	Local modular home factory	Construction materials	Marlow Continental Homes, Nashua, NH
Housing	Appliances	Shelter Search	Appliance remanufacturing plant,		

technology that works best in the local environment. They will be able to pick and choose what matches their interests, needs, talents as well as those for which there are local resources and markets.

Part of this process is for the staff of the Regeneration Center to facilitate the matching of resources with needs wherever there is a direct one-to-one relation. When there is not a direct correlation, then there is a need to develop the linkages between the needs of the zone, its resources and the available technology. Priorities will arise both from the major needs of the region as well as from resource and economic opportunities.

SUMMARY

The opportunities facing America are, and have always been, great. Just as our ancestors faced great opportunities when they built America up, so too we face the equally magnificent opportunities of regenerating our country. If our ancestors were able to build this country into the greatness it is from the raw resources and knowledge base which they had at their disposal, we will surely be able to regenerate America from the much more advanced level of knowledge we have now.

This potential for regeneration rests on the possibility for each community to take more control over their own local resources, needs and opportunities. Local regeneration can be brought about by local entrepreneurs meeting the needs of local people, businesses and institutions with local resources. These resources, if developed with technology that is scaled to

maximize the efficiency found at the local and regional level, can help generate the economic growth needed to increase employment, improve the quality of health care, food, water, energy and financial services while simultaneously decreasing energy use and cost, health care costs and the dollar drain from the region.

By the ubiquitous adoption of a regenerative economic development process throughout the United States, the entire country's economy and social well being would be greatly improved -- at a cost far less than any other development scheme.

THE NATURE OF REGENERATION

The Evolution of a Concept

By

Ron Shegda and Medard Gabel

Paper 2: Philosophical Background

Second Draft, February, 1985

The Regeneration Project
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INTRODUCTION

Regeneration is a tremendously rich concept. An adequate presentation of this concept demands an exploration of the meanings of the word.

Regeneration is one of the English languages's most comprehensive words. Its meaning touches such diverse bodies of knowledge as biology, physics, chemistry, engineering, computer science, theology and economics. Its basic meaning is "to restore to a previous condition, to improve."

The word "regenerate" obtained widespread usage during the 16th and 17th centuries. Most typical was its meaning of rebirth, either in an earthly or spiritual sense. The Oxford English Dictionary presents both of these early meanings: "1. Re-born; brought again into existence; formed anew" and "2. In religious use: Spiritually re-born."

Such uses can be found in both William Shakespeare and the King James Bible. In the Tragedy of King Richard the Second, Henry Bolingbroke (the future King Henry IV) and Thomas Mowbray, Duke of Norfold, challenge each other to the death over the cause of treason to God, king and self. Bolingbroke speaks these words to his father, John of Gaunt, in anticipation of victory.

> O thou, the earthly author of my blood,
> Whose youthful spirit, in me regenerate,
> Doth with a twofold rigor lift me up.
> (I, iii, 69-71)

In the King James Bible, the following appears as a reply to Peter's question on the rewards of apostleship: "And Jesus said unto them, Verily I say unto you, That ye which have followed me, in the regeneration when the Son of man shall sit in the

throne of his glory, ye shall sit upon twelve thrones, judging the twelve tribes of Israel." (Matthew 19: 28.)

Interestingly enough, the term "regeneration" changes in the New American Bible. The verse instead reads "...in the new age..."

Gerhart B. Ladner, in his book The Idea of Reform, illuminates the etymological basis of the related word "renaissance." "In a recent study on the philological roots of the Renaissance idea, J. Trier has shown that the metaphorical meaning of renasci... is not necessarily 'to be be reborn,' but may be 'to grow again,' the metaphor being taken from the realm of the horticulturist and forester, from tree life, where the 'damage' done by cutting (pruning) results in new growth, in a 'Renaissance.' One might add that renasci is thus closely related to revirescere ('to grow green again,' to grow strong, young again,' 'to reflourish')."

BIOLOGICAL USAGE

The various meanings of regeneration, especially its biological derivatives, relate to this notion of an environmental renaissance. When used by the life sciences, regeneration signifies "the replacement by an organism of parts of the body which have been lost or severely injured. The term is comprehensive and covers a wide range of restorative activities in a variety of organisms." (Encyclopedia of Science and Technology (5th ed.), New York: McGraw Hill. 1982, p. 465.)

The text goes on to state the history of this biological usage. "There is a long record of observations and experiments

on regeneration. References to the phenomenon are found in Aristotle and Pliny. The first extensive experiments on record are those of Abraham Trembley, who studied fresh-water hydras. The results of this work, begun in 1740, aroused wide interest and soon led to the testing by other naturalists of the regenerative capacities of a number of organisms. C. Bonnet (1745) was among the first to study regeneration in worms, and of particular interest is the work of L. Spallanzani (1768), who is credited with the first regeneration experiments on limbs and tails of amphibians." Another biological definition, from Elements of Biology by Charles Levy, has as its meaning "the replacement of lost or injured tissue, permitted by the ability of some cells to de-differentiate and develop in a new way."

PHYSICS USAGE

A physics application of regeneration is "an engine cycle in which low-grade heat that would ordinarily be lost is used to improve the cyclic efficiency." (Dictionary of Physics and Mathematics. New York: McGraw Hill. 1978, p. 826.)

A practical example of a device which utilizes the principles of recycling is commonly known as a "regenerator." "A regenerator is a charge, discharge type of heat exchanger...In most applications, such as in power producing plants and industrial furnaces, the regenerator is used to increase the efficiency of the installation by increasing the maximum, operating temperature and/or by recovering waste heat." (Encyclopaedic Dictionary of Physics. New York: Pergamon. 1982, p. 260.)

CHEMISTRY USAGE

Another use is in chemistry. Here regeneration means "the restoration of a material to its original condition after it has undergone chemical modification necessary for manufacturing purposes... The most common instance is that of cellulose for rayon production. The wood pulp used must first be converted to a solution by reaction with sodium hydroxide and carbon disulfide; in this form (cellulose xanthate) it can be extruded through spinnerets. After this operation it is regenerated to cellulose by passing it through acid (viscose process). Collagen can also be regenerated by acid treatment after it has been purified for use in food products by alkaline solution." (The Condensed Chemical Dictionary (10th ed.), New York: Van Nostrand Reinhold. 1981, p. 887.)

ENGINEERING USAGE

In the fields of engineering, electronics and communication, regeneration refers to feedback mechanisms. It is "the process of feeding back a portion of the output spiral of an amplifier to its input in such a way that the input signal is reinforced. The result is greatly increased amplification." Finally, regeneration has implications in the field of computer science: "to restore information in a volatile memory cell or the screen of a CRT."

RELATED CONCEPTS

The concept of regeneration is an extension of the words "benign" and "sustainable." Benign means that something is safe, non-destructive, biologically fitting or neutral. Sustainable

means that something is not only safe and non-destructive in the present, but that it is safe and non-destructive into the future. Regenerative means that something is more than safe and non-destructive in the present and into the future. It is more than neutral, it is positive. Regenerative means that something has the ability to go beyond just sustainability and into the realm of repair, restoration and growth.

There is a trend towards miniaturizing our technological processes -- doing more with less in other words. This trend's logical progression leads to regeneration. That is, in the evolution of technology, first we learn how to do something, then we learn how to do it better, how to do it more efficiently, to make it do more with less. As we use technology we learn how to do it/build it better. Continuing the more with less trend, we then learn how to make it smaller and smaller, and then we learn how to make it regenerative. Each step along the way of "doing more with less" is filled with increased knowledge of how nature works. A regenerative technology is one that is in tune with nature -- it has nature perform much of the work that was previously performed by brute force. In a strict economic sense then, a regenerative technology is a more efficient and economical technology because the inputs -- the paid-for-in-dollars inputs -- are less. Nature does more and more of our work, supplies more and more of our inputs as we learn more and more about how to work with nature.

A regenerative technology is a resource efficient or low-input technology. Just as a city region grows through "import

substitution," a regenerative technology develops through "input substitution." That is, a regenerative technology substitutes natural processes, biological structures, conservation and prevention for store-bought inputs.

What runs throughout the progression of technological development -- from the first prototype, to increased efficiency, to miniaturization and the doing more with less -- is the increase of information. Regenerative technology or programs are not energy or materials intensive, but rather, information intensive. They embody more information -- more know-how-what-and-where -- than do the nonregenerative technologies or programs that they supplant. For example, it takes much more information to control pests with biological pest control than it does with pesticides.

Regenerative technology works with nature, not against it. It starts with the honoring of the value of natural systems and takes advantage of the natural patterns of energy and materials and harnesses these flows and cycles to bring about desired conditions.

As the above technological development process happens, it allows and facilitates decentralization. This is because the process is dependent on information, not energy, materials or capital. Information resists centralization and monopolization because it can not be as easily contained. Unlike other resources, it is not diminished by sharing. It is multiplied by being divided.

As we do more with less, the economy of scale changes. As economy of scale changes, what can be done efficiently and

economically on the local level changes. Once we can do something economically on the local level, import substitution can begin. And, the ongoing process of making it regenerative can continue.

REGENERATIVE TECHNOLOGY AND PROGRAMS

Regenerative technology and programs refers to those technologies and programs that do not degrade but improve the biological, resource or human basis of their functioning. They are used to produce goods and services that society needs, while also undoing the environmental damage caused by our present energy and materials intensive technology.

Regenerative technology or programs lead to an improvement in the quality or to the preservation of the resource base that a system is dependent upon. It is a strategy for creating wealth while actually improving the resource base. For example, agriculture is dependent upon soil. Food production technologies that lead to rapid soil erosion can be classified as non-regenerative or "degenerative" technologies. On the other hand, technology that allows for the production of food and fiber but which also preserves and even builds up the soil, so that the resource base is better after farming than before, can be classified as a regenerative technology. Examples of regenerative technologies or programs in other areas are technologies for harnessing renewable energy sources, education, pollution control and recycling, accident prevention, housing stock repair, restoration and retrofitting, remanufacturing of durable products such as automobiles and other machines, and

preventive health care techniques, especially community-based prevention. (See Paper #5 "Examples to Build On.")

It is important to note that the concepts of regenerative technology and programs are not the antithesis of high technology, but rather an entirely different concept which has meaning in a different context. If regenerative technology is the antithesis of anything, it is of those technologies that degrade either the human organism, society or the resource base they rely on.

Regenerative technology focuses on the good that technology can do deliberately, rather than the harm it causes accidentally. It is also human scale and its effectiveness and measures of efficiency go beyond the bottom-line. That is, whether regenerative technology is "economical" or not is determined by more than just those items traditionally paid attention to by economists.

The above explorations of the word "regeneration" and some of its related ideas testify to the expansive richness and depth of the concept. It is a great word. Notwithstanding such widespread use of this term though, regeneration has remained a largely unknown or under-appreciated conceptual tool. Outside the somewhat narrow specializations which have found the process it identifies to be operating, regeneration is largely unknown. This is especially true in the realm of economics. As a paradigm for economic and social development, regeneration has even greater potential as a powerful conceptual tool.

ECONOMIC REGENERATION

Working toward a definition of regeneration as an economic development concept calls for a succinct overview of its basic elements. Regenerative economic development:

- Sets in motion a process that is self-organizing, self-sustaining, and self-correcting;
- Replaces imports into a region with locally produced goods, services, materials, and capital, for it is primarily concerned with building local self-reliance;
- Is organized and controlled by local residents;
- Creates value where it did not exist before through a process of local market growth, community exchange, trading, synergy, invention, and discovery;
- Is concerned with the development of systems -- of food and energy production, processing and distribution, housing, manufacturing, financial services, healthcare, and transportation;
- Has its limits of activity defined by regional culture and ecology;
- Is sensitive to the evolutionary nature of social change;
- Strengthens civic ideals, structures, and institutions through citizen participation in local affairs of either an economic, political, or social nature;
- Projects a comprehensive or generalist understanding into which specific actions can be related.

These elements lead to the following as a definition for regenerative econmic development: Locally organized and controlled regional economic development that utilizes local resources, goods and services to meet local needs in an ecologically, technologically, socially and economically regenerative way.

REASONS FOR REGENERATION

Having explored the meanings of regeneration, we now need to examine the real world context in which this new economic development tool is to be placed.

"Economic development" is a term often given by planners in states and communities to those actions which they believe will benefit their region. To be less generous, these actions are often ill-conceived, not coordinated with other programs, not in tune with any long or short-term goals, and not tied in with any objective criteria for evaluation. They are often the products of special interest investors, usually from outside the region, and are not formulated by the people who will have to live with the results. This work often amounts to little more than the proverbial re-arranging of the chairs on the deck of the Titanic. The combined efforts of all the local, regional, state and national "economic development" programs by all our planners and policy makers have resulted in the mess we are in. So far, these efforts have run the collective debt of the United States to over $4.5 trillion.

The U.S. government alone is over $1.5 trillion in debt. The interest on this debt -- $83 billion -- is more than the GNP of most countries of the world. In addition, there are over eight million people unemployed in the United States and 34.4 million people who are below the official poverty line. The idea of full employment is no longer thought a possibility, but has been relegated to the domain of a pipe dream by government and corporate planners. To make matters worse, much of the

industrial base of the United States is old, and in many vital areas, obsolete. Finally, the resources upon which the U.S. economy is dependent are growing increasingly scarce and expensive while competition for these resources and global markets is growing fiercer.

These and other symptoms have been pointed to for many years by doomsayers as heralding everything from the fall of the American dream to the end of Western Civilization. They point out that the problems are not going away, nor are they limited to the United States. And, the problems are, according to some, getting worse and more numerous.

Imbedded in these macro-economic issues is a structural arrangement which fosters an ever decreasing amount of self-reliance and thereby compounds the difficulties for states and communities to make headway in solving their economic and social problems. For example, states, regions and local communities around the country import large percentages of food, energy, materials, insurance, and the like while exporting dollars -- thereby draining the community of a valuable resource. Pennsylvania, for example, the leading agricultural state in the Northeast, imports 71 percent of its food and exports $8.6 billion to pay for this food. Much of the food could be produced in Pennsylvania by area farmers. Most Eastern and Midwestern states and towns follow a similar pattern. This outward flow of dollars is a drain on local resources and harms the local food producer, ties the distributor into a vulnerable long-distance transportation network and delivers an expensive product to the consumer that is inferior in nutrition and flavor.

The United States economy is changing. On one hand, we are increasingly becoming partners in a new international ordering for the production and distribution of goods and services. This means an ongoing realignment of our economic relationships with industrialized and developing nations alike. On the other hand, there is a growing need to rekindle the vitality of our local economies. Unforeseen shifts in market forces, employment losses from seemingly viable plants, a neglect of many rural needs, and an inability of the federal government to ensure lasting economic opportunities for everyone highlight why people need to make and are making changes on the local level. In the face of the inequalities of present social conditions, high unemployment, industrial dislocations and unacceptable poverty, regenerative economic development is a new social force that can help harmonize human need and the abundance and capacities of the natural world.

Old approaches to solving the above mentioned and other social and economic problems have not worked too well. From the New Frontier and Great Society to Supply Side Economics, nothing seems to be solving our problems.

Some approaches to solving society's problems are claimed to be new or more effective but they are little more than history with new faces. "Industrial Policy" or the "Reindustrialization of America" are national planning approaches out of the Soviet Union of the 1920's -- which was copying the industrialization patterns of the United States and Great Britain in the late 1800's. Little appears on the horizon of planning, problem

solving methods or economic development that offers anything more than the bold attempt to come up with something that fails slowly. No real systemic, sustainable solutions or methods of arriving at solutions are being offered by planners or policy makers at the federal, state, regional or local level. Management by objective, zero base budgeting, planning-programing-budgeting systems, comprehensive planning and strategic planning are all noble attempts to stem the tide of our growing problems, but they each lack some key features that tie them into the economic, ecological, resource and human-need realities of today.

The need for a new approach is readily apparent. An effective way of both looking at our problems and solving them is needed that will regenerate our local, regional and state economies and thereby the United States economy and society. One approach that offers this radical, but necessary, possibility is what we call regenerative economic development.

Regenerative economic development concerns itself with people working together to help make their household, farm, business, neighborhood, town or region more economically self-reliant.

Regenerative economic development recognizes that the way people earn a living can change. It can change over time and it changes from place to place. Every region and every locality has special resources with which it can help support itself. From the individual to the community, all people have distinctive customs, expressions of values, forms of association, ideas for education, and traditions. Taken together we call this human

culture. Similarly, everyone lives in a special geographic area of the Earth with its own particular resources. Climate, mineral and other deposits, soil, vegetation, water, and wildlife differ from region to region. All of these elements form a region's natural ecology. Culture and ecology are uniquely woven together in regions throughout our nation. Therefore, regions are a basic reference point for understanding how regeneration develops.

A "Regeneration Zone" is a special area in a region that seeks to solve or reduce its economic and social problems of unemployment, capital drain, health care, energy use, food production, environmental damage, resource cost, etc. by developing its regenerative technologies. A regeneration zone focuses, in a specific geographic region, multiple regenerative forces. It would aim to increase self-generated growth within a region.

Regenerative economic development takes place within regions or zones. It considers the special circumstances of human culture and natural ecology. It helps to create new work for people.

REGENERATIVE ECONOMIC DEVELOPMENT

Regenerative economic development is, at a general level, a method of recognizing, defining and solving society's problems. It seeks to do this through the development of regenerative technologies on a regional scale. Its emphasis would be on jobs for the people who live in the zone, clean and safe energy production, fresh and nutritious food, clean and safe water, a

healthier population and environmental improvement. "Well being" and "success" would be defined and centered upon the health of the people in the zone and their quality of life, not by the amount of money that is transacted through the zone. Maximum economic activity with minimum outside-the-zone inputs would be the aim. This is different from the conventional economic approach which seeks to maximize output but does not consider the concept of getting its inputs from within the region. Regeneration pays less attention to output and more to increasing labor-related wealth and value in the zone.

In summary, regenerative economic development provides the conceptual framework for program development that will increase the size and depth of the areas in a community that are economically and socially vital.

THE REGENERATION CENTER

A Vortex For Local Economic Development

By

Medard Gabel

Paper 3

Second draft, February, 1985

The Regeneration Project
Rodale Press, Inc.
33 East Minor Street
Emmaus, Pennsylvania 18049

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Business Plan for a Local Regeneration Center
(not included at this time)

INTRODUCTION

The Regeneration Center is where the activities that lead to local economic development and regeneration begin. These activities will include: research, marketing surveys, outreach and networking, education and local economic incubation and coordination.

As part of its work, the Regeneration Center will attempt to set in motion the various activities described in the paper "Local Regeneration: Examples to Build On."

ACTIVITIES

The Regeneration Center would:

- determine the imports into the region being serviced by the Regeneration Center;
- locate the local resources that are available to be used by local businesses, industry and consumers that could replace those resources currently being imported;
- determine local markets for locally produced goods and services;
- determine markets for new products and services that could be produced locally;
- determine manufacturing capabilities of the area and what resources are needed by those facilities and what resources are available locally that could substitute for imports;
- determine the market for locally produced food products through a survey of all the bulk buyers of food in the area;
- determine the market for all energy conservation equipment, retrofit solar equipment, household repair, appliance repair, new housing demand, owner-built housing demand, the need for day care, babysitting, lawn care and other related household needs through a market survey of home owners and renters in the area;
- determine the energy conservation market for businesses and industry through a market survey of all businesses and industry in the area;

- determine the market for home health care, preventive health services, and fitness centers in the area through a market survey of homeowners, renters and users of the Center;

- determine the need for transportation facilities such as carpooling, bicycle paths, walkways, pedestrian overpases, taxis and mass transit facilities through a survey of home owners and renters;

- network the local human resources of those who use the Center into a more vibrant economic arrangement;

- publish a directory of all locally produced goods and services;

- help determine the appropriately scaled technology that can be used by local businesses to meet local market demands.

In short, the Center would determine the market for all locally produced or potentially locally produced goods and services that the local economy could substitute for imported goods and services.

Another of the measurement activities of the Regeneration Center will be the conducting of an annual Regeneration Index. This Index will measure the level of regenerative activities within the area. With the success of the Regeneration Center, the index number will rise. Another activity of the Regeneration Center will be the annual conducting of a Vitality Index which will measure the potential of the area for regeneration. With the success of the Center this Index will also increase. (For a further explanation of the Regenerative Index and Vitality Index, see Paper #4, "Tools for Regeneration".)

Having done the research to make these determinations, the Center would do two additional things: 1) it would communicate these findings to the general public, local businesses and

entrepreneurial community; and 2) it would seek to set in motion through the fostering of entrepreneurship among local residents the meeting of the needs and market potential that have been located.

FINANCES

The Regeneration Center would be designed to be financially self-sufficient after three years of seed money funding by a local foundation or business concern. It would do this by charging for its various products and services.

PERSONNEL

The Center would be staffed by three to four full-time personnel. One of these people would be a research person who would conduct the surveys described above. Another person would primarily be responsible for organizing a regenerative network within the community being serviced by the Center. A third person would be responsible for entrepreneurial development. In this capacity the Center would act as an information center for entrepreneurial development in the local area. A fourth person would provide secretarial support.

The network director of the Regeneration Center would be responsible for a variety of activities, one of which would be the publication of a local Green Pages. The Green Pages would be a phone listing similar to the yellow pages. All of the locally produced products and services would be listed. The Green Pages Directory would be distributed to everyone in the Regenerative

Center's area.

Another activity that would be coordinated by the network director would be an annual fair where the same people listed in the Green Pages would have an opportunity to meet and display their goods and services for the other residents and businesses of the area. Yet another activity of the network director would be the organizing and setting up of a Local Exchange Trading System. In this local economic exchange and trading system the users of the Center would trade and sell their goods and services to other members of the Center without the exchange of money. (For further details see Paper #5, "Local Regeneration: Examples to Build On.") Part of the salaries of the Regeneration Center personnel could be covered by "green dollars," the "currency" of the Local Exchange Trading System.

CONTROL

To be successful, the Regeneration Center has to be a vibrant force in the local community. It must be run and organized by members of that local community. When successful, the local Regeneration Center will increase the wealth and well-being of the local community by creating more economic opportunities and jobs for individuals and businesses.

TOOLS FOR REGENERATION:

Beyond the Bottom Line

By

Ellen Pahl and Medard Gabel

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INTRODUCTION

A tool, as the dictionary says, is "something used in performing an operation." Throughout history the use of tools has enabled human beings to improve their existence by gaining greater control over certain aspects of the environment. Tools have evolved along with humans, and they are continuing to evolve.

In the development of the concept of regeneration and Regeneration Zones and Centers, we are proposing the parallel evolution of a number of "tools." These tools will be useful to many people -- policy makers, government leaders, local officials and community leaders, planners, entrepreneurs, consumers, and business people. The series of tools described here are a very specific set of sharp tools aimed at measuring the level of, the potential for, and the activities for bringing about, regeneration.

The measurement tools are of three basic types: Indexes, Inventories, and Market Searches. The indexes will indicate the relative economic health of a particular area. They will give the present condition or level of regeneration in a region and will gauge the capacity of the area to regenerate itself. These indexes will be based on the results of several inventories which will measure systems such as natural and human resources, agricultural production, food processing, manufacturing capabilities, transportation and educational resources.

The indexes are analogous to a barometer and measure fluctuations in the level of regeneration. The inventories

measure quantities and availability of various resources and serve as yardsticks. The third set of tools, the Market Searches, will in essence be the lever or crowbar to initiate movement and change. These searches will demonstrate the existence and size of markets for various products and/or services related to agriculture, energy conservation, housing, healthcare, etc.

These tools will be translated into computer software so that data collection and manipulation can be easily and quickly carried out. The availability of computer software will facilitate the transference process to give control of these tools to the people who will be using them.

TOOL DESCRIPTION

I. INDEXES

A. Vitality Index

The Vitality Index is a measure of the present conditions or vitality of an area as compared to the ideal, or regenerative state. It is the current situation relative to the goal of total regeneration. For example, if an area produces 30 percent of its food, but has the potential to produce 60 percent, then the Vitality Index would be 0.5. The desired index is 1.0, equivalent to the regenerative condition. The regenerative state is determined through the inventories as the maximum potential and is assigned the value of 1.0. The ratio of the vitality condition to the regenerative condition is obtained by dividing the vitality ratio (.3 as in the example above) by the regenerative ratio (.6). The measure of vitality is relative to

regeneration, as in the barometer model. The index rises toward the maximum, whether it is .75 or 1.00, due to pressure from increased regenerative actions, measured by the Regenerative Index.

The Vitality Index is composed of general factors that indicate overall societal health and the ability or capacity for regeneration. These factors are listed in Table 1.

These factors can be employed separately as indicators of the general well-being of their respective areas, or they can be combined into one number that indicates the entire, overall vitality of the zone.

This Vitality Index will furnish the planner, policy maker and general public with a powerful tool for judging the health of their region, comparing that health with other regions, measuring the health of their region from one year to the next, determining the overall efficacy of different economic development strategies and programs and furnishing the population of the region with an easy-to-understand measurement of the success or failure of their elected (and non-elected) leaders and institutions.

A wide range of important insights into the well-being of a region can be derived from the Vitality Index and its component parts, and these are also included in Table 1. Together, the derivations measure many key economic and social losses or gains in a zone.

TABLE 1 VITALITY INDEX

FACTORS	PRESENT STATE	REGENERATIVE STATE	DERIVATIONS
Employment	Percent employed Percent employed in small manufacturing and service businesses	100 percent of those who wish employment having a job	Number of days that could have been gainfully used in employment if jobs were available Dollars lost - money paid to workers if jobs were available
Health	Percent of people who are not sick or in hospitals Percent of people over 65	100 percent of population without sickness	Number of productive days lost as a result of illness Dollars lost due to illness Number of people in need of health care
Energy	Percent of total energy used produced in zone Percent of total energy available used to meet local needs	Meeting needs with in-zone energy sources	Dollars lost as result of importing energy
Food	Percent consumed produced locally Percent consumed processed locally Percent of water supply non-polluted Percent produced locally with regenerative techniques Percent that could be produced locally	Meeting needs with local food sources	Dollars lost as result of importing food
Materials	Percent met with local materials Percent of infrastructure in need of regeneration	Meeting needs with local materials	Dollars lost as result of importing materials
Capital	Percent for insurance energy, food, healthcare, materials Percent of people not on welfare Percent of people not on social security Percent of people heavily in debt	Keeping capital resources within zone	Dollars lost to zone as result of investment outside zone with zones money

B. Regenerative Index

The Regenerative Index will examine and measure actions, activities, and functions occurring in an area that contribute to regeneration. It will measure the factors that cause the Vitality Index to rise or fall. The index will quantify to what extent regeneration is taking place. It will measure the number of people, businesses, industries, etc. practicing regenerative techniques and methods, and using regenerative technologies. An example is the percent of farmers in an area who are rotating their crops, or the percent of businesses in the region which are producing goods or services for local consumption. As regenerative activities increase, the index will increase.

The factors composing the Regenerative Index are listed in Table 2. Together, the five areas in Table 2 will be an indicator of the level of regeneration of a zone. Taken separately they will identify specific actions that can be taken and areas that can be improved or that show potential for regeneration.

TABLE 2 REGENERATIVE INDEX

FACTORS	REGENERATIVE ACTION	DERIVATIONS (INDEX)
Employment	Hire in-zone unemployed to fill job openings Create new jobs in-zone for unemployed Allow job sharing and flex-time Increase percent of product or service marketed in-zone Decrease waste management and recycling Decrease handling of toxic materials Increase air pollution controls Decrease work noise levels Begin or improve work health/fitness programs Replace import with in-zone materials, products, services	Percent of local employment engaged in regenerative activities
Health	Stop smoking Moderate alcohol consumption Wear seatbelts End exposure to toxic substances Install smoke detectors in home Have access to clean water Exercise regularly Restrict fat consumption Maintain weight Take steps to control stress End getting too much cholesterol Restrict sodium Restrict sugar Get seven/eight hours sleep	Level of preventive health in zone Level of preventive health in zone Percent of population practicing key preventive health and safety habits Percent of population that has consciously improved health habits Percent of population that rates their own health as excellent, very good, fair or poor
Energy	Caulk and weather strip windows, doors Add insulation to attic Add Set-back thermostats Replace old burner unit with more efficient one Add insulation to hot water heater Lower thermostat on hot water heater Add flow-reduction shower heads Insulate windows Install storm doors, storm windows Insulate walls Increase south window area Install low cost air heating solar collectors Install solar hot water heater	Percent of energy use in-zone that is regenerative
Food	Diversify production regime Rotate crops, including legumes for nitrogen fixation Intercrop Plant cover crops Use more manure for fertilizer Store manure, minimizing nutrient losses for application at proper time Increase number of livestock Reduce soil erosion Install on-farm alternative energy sources Reduce pesticide use, control weeds mechanically Market products locally Process products locally	Percent of food system that is regenerative
Shelter	Conserve energy via weather stripping, insulation, etc. Conserve water via flow reduction shower heads, etc. Produce food in garden Process garden food Paint shelter Refurbish shelter Repair structure Add space	
Materials	Buy in-zone products Buy in-zone raw materials	Percent of materials used that are from zone
Capital	Buy food, energy, materials and services from local suppliers Invest capital in in-zone enterprises Invest capital in enterprises which employ the most in-zone materials, energy, food Place savings in banks which invest your money in in-zone enterprises Purchase insurance from in-zone insurance company which keeps the money in-zone Dis-invest from enterprises which drain the zone of your capital resources	Percent of capital that is spent/ invested in the zone that stays in the zone

II. INVENTORIES

The second essential element in establishing a Regeneration Zone is an inventory, or series of inventories of natural and human resources, agricultural production and food processing, manufacturing capabilities, imports and exports, and technology. These inventories are necessary to determine maximum potential for import replacement and the upper limit in the Vitality Index.

A. Natural Resources Inventory

This is a complete survey of natural resources in a zone. The list would include minerals, forests, water resources, and any unusual or economically important flora and fauna. This provides a list of materials which could substitute for imports from outside the area, and which could provide raw materials for further processing.

B. Human Resources Inventory

This is a thorough documentation of the population who use the Regeneration Center. It would include age, sex, educational background, employment status, skills, general interests, business or entrepreneurial interests, saleable resources, and other demographic characteristics. This inventory would help demonstrate to individuals and the community the potential for utilizing local human resources more creatively and in a manner which would enhance the quality of their lives.

C. Import/Export Inventory

This is an examination of all imports and exports for an area, from food to appliances, fertilizers, and energy. The purpose is to help locate those items which have the potential to

be produced locally with local resources.

D. Agricultural Production and Food Processing Inventory

This is a survey of all crops and livestock produced in the area and the amount of land available for crops, grazing, forests, etc. The inventory would include any food processing industry in the area and would point out areas where additional crops could be produced or grown to meet the needs of food processors and consumers.

E. Industrial Inventory

This is an accounting of all manufacturing and other industries in the area, with the products they have or services they could provide. This would give an indication of the capability of the area to provide more goods for itself, substituting locally produced items for imported ones. It would also highlight any industries which may be vulnerable to change or current trends and those which rely on non-regenerative technologies or practices and those that could possibly switch to regenerative practices, processes or technologies.

F. Local Economy Inventory

The Local Economy Inventory serves to match local buinesses with local suppliers in order to replace costly imports coming into a region. It comprehensively surveys all enterprises and institutions in a region. It covers both primary and secondary material inputs as well as waste products that may have potential economic value.

Included in this survey will be manufacturers, service companies, nonprofit organizatins, and local governmental agencies. This inventory has the potential for significantly

increasing the vitality of a local economy. It will put local product and supply information at the tips of a business person's fingers. For instance, a similar effort in Lane County, Oregon, has increased local sales by millions of dollars. Their "Buy Oregon" program has matched up local or regional businesses (that were previously buying goods or services from hundreds of miles away) with suppliers virtually in their own backyards. This has led to steady improvement in the economic health of Lane County businesses and residents alike. The Local Economy Inventory goes even further by reaching institutional purchasers and by exploring how wealth could be generated from materials previously regarded as waste. This inventory can translate into lower costs through import-substitution, and into new enterprise creation through a dynamic awareness of how the local economy works.

G. Regenerative Technology Inventory

This is a listing of all technologies which are regenerative and actively utilized in the area. Along with this would be a comparable list of technology which could be used in the area, either to substitute for a technology which is not regenerative, or to inititate new business ventures. The technologies listed will be regenerative and appropriately scaled to meet local needs using local resources.

III. MARKET SEARCHES

A. AgMarket Search

AgMarket Search is the prototype for a number of market searches. It is a computerized survey which can locate and identify local markets for food producers. The service is

designed to give farmers a local outlet for their commodities so that they can receive better prices and expand their marketing opportunities. The survey is of all bulk food purchasers in an area including supermarkets, restaurants, wholesalers, processors, institutions, schools, and hospitals. Survey respondents indicate the items and quantities of foods they are willing to purchase from local farmers, such as vegetables, fruits, grains, nuts, dairy products, meats, poultry, cider, honey and maple syrup.

Findings from the survey include: 1. The total market potential for each food item in quantity and dollar value. 2. Names and addresses of bulk food buyers willing to purchase locally produced foodstuffs, by geographic area and commodity. 3. Willingness of bulk food buyers to purchase foodstuffs directly and in-season only from local producers. 4. Kinds of services required by purchasers willing to buy locally produced food. 5. Most important criteria looked for in purchasing. 6. Most preferred vendors of locally produced food. 7. Percent of total market value which represents an entirely new market.

B. Farmer Search

The Farmer Search is a "companion" survey to AgMarket Search. It involves a survey of all food producers in an area. The survey would ask detailed questions concerning the quantities of the different commodities produced and how much is available for local purchase. Other questions would determine the marketing method, i.e., roadside stand, pick-your-own, the location and hours of operation, etc. The end result would be a

directory of producers for a region which would aid consumers as well as bulk buyers in purchasing local foodstuffs and supporting local food production.

C. Home Market Search

The economic transactions involved in acquiring, maintaining, and improving our homes provides a huge income potential for local business enterprises and industries. Home Market Search is a survey of renters and home owners in a zone that seeks to tap this market for local businesses. Home Market Search locates markets for a variety of goods and services related to renovation, repair, and maintenance of shelter. The search pinpoints untapped local markets centered on the home which will be of value to local businesses, retailers, contractors, and others.

The survey asks questions about the need for items such as storm windows, caulking, screens, furnaces, woodstoves, solar collectors, greenhouses, insulation, and other materials, products, and services for home repair, maintenance, and renovation. It focuses on those goods and services which promote regeneration, such as energy conservation, repair, and reuse. This information would allow the local business community to repond appropriately through product diversification, expansion, or import substitution. Given that the market in home improvements is over $38 billion annually in the U.S., any help in locating this market in an area would be of immense use to local businesses.

Other questions included in the survey relate to the demand for additional housing, new home construction, and owner-builder

programs. In addition are questions on the need for diverse items and services such as lawn care, landscaping, babysitting, daycare, appliance repair, house cleaning, and food needs. These questions would furnish the small business and beginning entrepreneur with the data they need to start their venture. Home Market Search would help define specific service and manufacturing needs in the local housing market, which in turn would point out new economic opportunities for local businesses.

D. Energy Search

An Energy Market Search will locate and identify the market for services and products which conserve and generate energy. This search would consist of two components -- the residential market and the industrial/business/commercial market. An Energy Search directed at the homeowner could be incorporated into the Shelter Search or could stand on its own, depending on the needs of those conducting the search. Questions would be asked about the need for new, more efficient heating units, woodstoves, solar collectors, solar water heaters, passive solar remodelings, solar greenhouses, etc. Other questions would ask if respondents could convert present use of imported energy to locally-derived energy and how much they would be willing to spend to do this.

The Commercial Energy Market Search would ask similar questions of business and industry with the addition of options such as waste heat recovery and use, water recycling, co-generation units, etc.

E. Transit Search

Transportation needs will be determined by a Transit Market

Search. This search would be of all households in an area or a sampling of the population. It would determine the market for remanufactured automobiles, mass transportation (bus, train, air, cabs, special services), bicycles and bicycle routes, pedestrian paths and overpasses, and car pooling. This will demonstrate the market for these various activities and promote related business investments.

In addition, this search could ask questions concerning people's driving habits and commuting patterns to better understand the transportation needs in the area, the use of certain highways and bridges, and how to improve the system.

F. Wellness Search

A Wellness Market Search could locate markets for preventive health care products and services both among consumers and in the industrial and commercial sector. A Wellness Market Search aimed at consumers in a zone would identify the need, desire and market for preventive health care products such as exercise equipment, self-monitoring devices, medical equipment for use in the home (e.g., blood pressure cuffs, examination scopes), and services such as aerobic classes, exercise instruction, nutrition counseling, self-care instructional classes, etc.

A survey geared toward businesses would determine the need for implementation of employee fitness programs, exercise facilities and equipment, jogging trails, nutritional consulting services, stress management workshops, facilities for cycling commuters, stop smoking programs, etc.

Information such as this would give local health care providers, entrepreneurs and others the information needed to

start up and expand operations in preventive rather than curative directions.

G. Financial Search

This market search would survey consumers and businesses about their willingness to purchase their insurance locally. It would also indicate the market for other financial services and needs and would help to keep more dollars circulating in the local economy. Additional questions could determine the willingness of local businesspeople and investors to invest in local business.

IV. COMPUTER SOFTWARE

The synthesis of the above tools for regeneration into computer software programs will promote their widespread use and provide easy accessibility to the elements of regeneration. In addition, any person or group wishing to apply the concept of regeneration to a region could select from the range of technology options presented in the spreadsheet example in Paper #1, page 6a. Any or all of the tools may be selected for use in the regeneration of a local economy. The uniqueness of this approach is that it enables development specialists, community leaders, consumers, or any interested person to focus on a particular system and work through the dynamics of imports, exports, market determination, resources and import substitution to discover local or regional economic development potential.

V. CONCLUSION

The above tools are measurement structures that are needed

to evaluate and set in motion local economic regeneration. These tools go beyond what conventional economic indicators and tools measure. They reach beyond the bottom line of narrow economic concerns and tie the local economy into the abundance of the natural systems of the local environment and the abundant free time, energy and creativity of the local population. The concept of "profit" is expanded from just quarterly earnings of money to that of the more inclusive concept of local economy profitability, environmental profit and human resources and health profit. These tools help create wealth and well-being by furnishing us with the means for perceiving and measuring new sources of economic vitality and abundance. In the hands of motivated community leaders such tools can be powerful levers for local regeneration.

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APPENDIX

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THE REGENERATION PROJECT

PRODUCTS AND SERVICES

Regeneration Project Products

I. Measurement Tools

1. Vitality Index

   Measures local or regional economic health and illustrates the capacity for self-reliant growth in a defined zone

2. Regenerative Index

   Measures actions being taken within a defined zone that contribute to regeneration

II. Market Searches

3. AgMarket Search

   Locates market for locally produced food products and brings increased vitality to the regional farming community

4. Energy Search

   Locates market for products and services which conserve and generate energy

5. Home Market Search

   Locates market for new homes, home improvement, home repair, appliance repair, lawn care, child care

6. Wellness Search

   Locates market for home health care, preventive health services and products, fitness centers

7. Farmer Search

   Locates farmers who are willing to produce for local markets to revitalize regional economies

8. Finance Search

   Locates market for insurance and other financial services

9. Transit Search

   Locates market for taxi, personal rapid transit, public transit, bicycle, etc. transportation

III. System Inventories

10. Natural Resource Inventory

Lists natural resources of local area

11. Human Resource Inventory

    Lists human resources of local area

12. Agricultural Production and Food Processing Inventory

    Lists farmland, identifies crops and livestock produced and capacity for additional production and processing

13. Manufacturing Capabilities Inventory

    Lists manufacturing facilities of local area

14. Local Economy Inventory

    Lists resources needed and used by local manufacturing facilities, farms and businesses

15. Import/Export Inventory

    Identifies all imports and exports for an area

16. Regenerative Technology Inventory

    Lists the technology scaled to meet local needs using local resources

IV. Consulting

17. Regenerative Economic Development: Consulting service that will help client match their resources, needs, skills, and interests with available technology for meeting a region's needs.

18. Workshops and seminars on regenerative development for policy makers, local leaders, entrepreneurs, foundations, etc.

19. Startup of regeneration centers: Consulting service that will help client set up a Regeneration Center, doing such things as transference process, training, initial research, computer inventory set-up, etc.

20. Local Product Development: Consulting service that will help client develop local markets for local products, doing such things as producing a local catalog (like Memphis), holding a local product/service fair (like Wash.) etc.

V. Computer Software

21. Data Base Management (DBM) Tool for Natural Resource Inventory

22. DBM Tool for Human Resource Inventory

23. DBM Tool for Agricultural Production and Food Processing Inventory

24. DBM Tool for Manufacturing Capabilities Inventory

25. DBM Tool for Import/Export Inventory

26. DBM Tool for Regenerative Technology Inventory

27. DBM Tool for Local Economy Inventory

28. AgMarket Search DBM

29. Energy Search DBM

30. Home Market Search DBM

31. Wellness Search DBM

32. Farmer Search DBM

33. Finance Search DBM

34. Transit Search DBM

December 22, 1984

The Need for Pioneer Enterprises In Regeneration Zones

by

Robert Rodale

Regenerative development is rooted in the idea that people living within an area that is not thriving can restore their economic health by making greater practical use of nearby natural resources that are self-restoring. That natural process of regeneration -- what I call the benign force of nature -- is almost universal and exerts its power continuously -- unless environmental degradation has proceeded too far.

For example, if given a chance to rest, soil regenerates naturally. So does water and air. Abundance plays a role in that regeneration. Soil, for example, is exposed to abundant sunlight, abundant air, and often abundant moisture and abundant seeds of restorative plant species. When given the opportunity, those continually-available resources help to make soluble the locked-up minerals in soil, and cause regeneration.

Air and water can also regenerate and return to past levels of purity if allowed to flow unimpeded through the biological cycles which characterize their existence. Land regeneration has been observed more carefully, however, because land stays in one place and the process of regeneration can be watched over a long period of time.

Regeneration zone development shares with land a similar place orientation. Conventional development, by contrast, knows only global limits. Any market and any resource anywhere in the world are considered for possible conventional development use. But regeneration zone development concentrates primarily on potential markets and resources within the zone. That fact -- plus the intention of people creating regeneration zones to make better use of the abundant resources within the zone -- suggests that it would be profitable to examine closely how regeneration occurs in a terrestial ecosystem.

People creating regeneration zones might also think about another quality shared by depleted economic regions and undeveloped natural areas. They both are characterized by low input levels -- particularly energy inputs. A natural region enjoys a continual supply of solar energy, but it is dispersed and can't be increased suddenly to replace the energy embodied in a climax plant community that has been destroyed. Similarly, a human regional community often has difficulty getting from outside itself a large influx of capital to meet recovery needs after its mature economy has been destroyed.

Therefore, most natural regions respond to the destruction of their climax plant populations not by recreating the same collection of plants (which embody a large amount of minerals and energy per unit of land area), but by establishing waves of different types of plants that accumulate energy and minerals within themselves gradually. Each wave of plants prepares the way for later waves, both by improving the environment and by embodying more nutrients and energy. That process is called succession.

The word pioneer is commonly used in ecology to characterize the plants of an early stage or stages of succession. F. E. CLements, in his book Research Methods in Ecology, (Lincoln, NB, University Publishing Co., 1905) specified that pioneer plants have these properties:

1. Great seed production.
2. High seed mobility.
3. High light requirements.
4. Ability to tolerate disturbed environments.

Plants that combine those four properties are uniquely able to move into an environment that has been stripped of its previous plant life, and begin the process of regeneration. The value of great seed production and high seed mobility are obvious. They enable plants to spread over a wide area quickly.

High light requirement is important for several reasons. One is that a disturbed environment almost always lacks shade. And the other is that succeeding waves of plants often need the shade of pioneer plants to become established. The trunks of some types of trees, for example, must be shaded when young.

The ability to tolerate disturbed environments speaks to the likelihood that soil quality can be poor in an area experiencing the first stage of succession. A disturbed environment may be low in the fertility needed by later waves of plants.

What is the effect of pioneer plants on the environment? They accumulate organic matter, increase moisture and nutrient supply, modify light and the general physical environment, according to Robert P. McIntosh, writing in the book The Recovery Process in Damaged Ecosystems, edited by John Cairns, Jr. (Ann Arbor Science Publishers,

Inc., 1980). In other words, they begin to return to the region those qualities needed to pave the way for a plant economy embodying more energy and nutrients, and exhibiting more diversity and sophistication.

Succession and Pioneering In Economic Development

We know that when converting a farm from conventional to regenerative agricultural practices, the farm economy must descend into a trough of lower yields before the soil environment builds its regenerative capcity. It is also often necessary to alter the structure of the farm economy to accomodate the switch from one or two crops to a greater number of different plants. That is called a conversion process, but the idea of succession applies directly. Studies at the Rodale Research Center have shown that if the farmer grows certain plants and avoids others, the trough of conversion will be shallower, and will last for a shorter time.

Moving from the farm economy to the general economy of a region being developed as a regeneration zone, we must move from the known and tested into the area of pure speculation. We are dealing with what could be rather than what is. But I feel that in the future, if we are able to look back on the successful use of regenerative principles in regional economic development, we will be able to see that a process of succession has occurred. One set of entreprises with unique characteristics will begin the process of economic regeneration, and that set will be followed by (and perhaps mixed with) other waves of

different kinds of enterprises. And the enterprises in those later waves will have needed the nurturing and the general improvement of the region that the pioneer enterprises have provided.

Before envisioning the nature of possible pioneer enterprises in regeneration zones, we can look back and see the sucession of enterprises that were used to build this country from raw land into its present economy. My purpose is not to urge that we return to the kind of primitive life of the American past. But we can look for patterns that might have meaning for our future.

Home-centeredness characterized the frontier, for example. There were no factories. Almost everything was made and used in the home. Food and clothing were produced, processed and sold near their point of origin. So was almost everything else.

There is a prounounced trend today to center more production and service in the home. The "health" industry, for example, is returning to the home -- where it functioned in frontier times. There is much more interest in working at home -- a movement stimulated by the rapid development of computer technology. Home manufacturing of knitted garments has recently been legalized.

Jane Jacobs book The Economy of Cities is a good source of historical information about the succession of enterprises and the effect of different early patterns of industry on later development of city economies. In her chapter How New Work Begins, Mrs. Jacobs shows that a diversity of enterprise creates a climate for innovation that allows industry in city regions to learn how to substitute for imports quickly and efficiently.

There are no doubt many other sources of historical data about the succession of industry and enterprise that marked the transformation from a pre-industrial to what is now being called a post-industrial culture. While many of the changes in enterprise patterns that happened in our past were anti-regenerative, the way succession of industries happened could provide some useful insights that would be useful in structuring change toward regenerative development.

Improving the Environment For Pioneer Enterprise

Every regeneration zone begins with a study of the potential for local production of necessities like food, shelter, energy and transportation, and moves quickly toward fostering local marketing of such production. Small farmers' markets -- even tailgate markets -- can be the first phase of a regeneration zone effort. They are pioneer enterprise.

Starting a farmers' market, though, is relatively easy compared to the challenge of convincing the people in a region that such small-scale local production and marketing is a significant step toward self-reliance for the whole community. People need to <u>believe</u> that small scale local production and marketing can lead to significant local self-reliance based in regeneration. And projects like farmers' markets do in fact have to lead to a higher level of local self-reliance, in order to justify the cost and effort of setting up a regeneration zone.

I believe that both the reality and the idea of pioneer enterprise are important to regeneration zone development. A region lacking in enterprise health and therefore lacking in job opportunities needs to look within itself for local production and market potential, (and that potential needs to use more of whatever resources are abundant locally, and less of what is scarce, expensive and imported). But in order to create a thriving future, the community needs to see and believe that the small first steps toward regeneration will lead later to bigger and better steps. The concept of succession, begun by pioneer enterprise, can be an important part of that vision.

The idea of using the concepts of succession and pioneer enterprise in regeneration zone development are new, and much additional thinking and work needs to be done to move these ideas from being merely ideas to becoming facts of community improvement. Some of the questions that need to be asnwered are:

1. What types of products and services can be supplied by pioneer enterprises?

2. Is size a constraint? Must pioneer enterprises be tailgate or pushcart-type operations, or can they be much larger? How much larger?

3. Does pioneer enterprise need a more permissive and supportive regulatory climate to thrive?

4. How can cooperation within the community create that better environment for pioneer enterprise? Some ideas include:

    a. A district for pioneer enterprise within the zone, where a special set of more tolerant business regulations would apply.

b. A Pioneer Enterprise Mall, located in a low-rent district needing regeneration that nevertheless provides a supportive environment for embryonic business -- both retail and manufacturing. The Pioneer Enterprise Mall could be a regenerative factory outlet.

c. A Pioneer Enterprise Festival -- lasting a week or two -- could give a community an opportunity to test the Pioneer Enterprise concept. Awards and special continuing support could be given to those enterprises that residents of the community attending the festival feel have the greatest potential for regenerative development. In that way, residents would begin to guide the succession process.

c. A Pioneer Enterprise Council could link local government, pioneer entrepreneurs, and the local business community in support of the Mall and other efforts. The knowledge that pioneer enterprise is the first step toward a succession of other and more advanced waves of enterprise could be the conceptual glue holding the Pioneer Enterprise Council together.

The key to mustering total community support for an intensive pioneer enterprise program leads to my fifth question:

5. Will pioneer enterprise -- after it gets concessions from the community -- really fade away and be succeeded by later and more developed waves of enterprise?

In the plant world, a variety of mechanisms are employed to accelerate succession. All pioneer plants tend to improve the general environment for succeeding waves of plants. Some perform specific functions, like providing shade for the trunks of just-sprouted trees. And some pioneer plants actually commit suicide by autotoxicity. That effect is reported by R. E. Wilson and E. L. Rice in their paper "Allelopathy as expressed by Helianthus annus and its role in old field succession," Bull. Torrey Bot. Club 95:432-448 (1968). J. McCormick reports a similar observation in "Succession," Via 1:1-16 (1968).

The word allelopathy describes a process by which many plants emit chemicals that change the environment for themselves and for other plants, including those that are planted or grow naturally in subsequent seasons. The allelopathic effect is powerful, and is increasingly being used as a tool of natural (and regenerative) weed control in agriculture.

Pioneer plants, when they begin the process of succession by creating a good environment for more important plants, are not weeds. Nor is the tailgate farmers' market or a collection of sidewalk merchants a second rate form of enterprise. Both are pioneers, and are preparing the way for something better that comes later.

GLOSSARY

Benign force of nature - The self-renewing energies and processes within natural order.

Citizen participation - The active involvement of people in civic, public and governmental affairs.

Climax community - The final, stable stage of a series of communities, such as an oak hickory forest or an established beach dune. The community typically contains plant and animal species best adapted to the climate and geography of a specific area. This community likewise contains a maximum possible amount of stored energy. The entire process begins with pioneer plants. An important analogy for the composition and eventual decline of climax communities can be made with mature industrial regions that have a high investment in aged facilities.

Decentralization - The organization and administration of economic, political and social activities on the lowest possible hierarchical level necessary for properly achieving their ends.

Import substitution - A process of economic development by which a city or region replaces goods or services formerly purchased from outside its boundaries with those made locally. As new work is added to old work and new enterprises develop during this period of replacement activity, the export earnings of an area can shift the composition of its imports toward other items for a later period of substitution. This dynamic fosters what economist Jane Jacobs calls "explosive city growth."

Local economy - A well-defined, coherent and accessible setting in which a common identity is readily visible in the work and leisure routines of daily life.

Local entrepreneur - One who organizes, manages, and assumes the risks of a local business or enterprise.

Local exchange trading system - A self-regulating economic network which allows its members to issue and manage their own money supply within a bounded system. It includes computerized bookkeeping for facilitating transactions in a local economy without currency.

Market searches - Computerized surveys that locate and identify present and potential local markets for goods and services that promote regeneration. Designed to create and expand local outlets so local producers obtain higher profits and local purchasers benefit from lower transport costs.

Pioneer enterprises - Analogous to pioneer plants in an ecological system. Resulting from local entrepreneurial work, these enterprises have the characteristics of producing, processing and exchanging goods and services near the point of origin of their inputs and markets. The importance of these enterprises is that they provide a base of transition for subsequent generations of economic activity.

Pioneer plants - Hardy plants that are the first to appear in a natural region after the destruction of a climax community. They have four principal characteristics: 1) great seed production; 2) high seed mobility; 3) high light requirements; and 4) the ability to tolerate disturbed environments. These plants accumulate very small amounts of energy and nutrients compared to the very large amounts in a climax community. They also allow natural succession to begin. An example would be marram beach grass being the first plant to appear in the very gradual process of creating a stable series of dunes on an ocean shoreline sandbar.

Regeneration - Restoration to a previous condition; improvement. In biology, the replacement of lost or injured tissue permitted by the ability of some cells to de-differentiate and develop in a new way. In the context of economic development, furthering recovery and growth through the despecialization of the lcoal economy and the production of a more diverse set of products.

It is important to distinguish between "regeneration" and "regenerative." The first word is a noun. It emphasizes certain qualities of life embedded within an organism. Funk and Wagnall's dictionary puts the first definition of regeneration this way: "The act of regenerating, or state of being regenerated, or state of being regenerated; recreation (which should be read as re-creation); as, the regeneration of society." Of course, this all points to the verb (the action associated with a concept). Thus, regenerate in this dictionary means: "Having new life: renewed; restored." so when we talk about regeneration zones, we concentrate more on the concept and activity of renewal rather than just on the place. At heart, the emphasis is on people.

Regenerative - Since this word is an adjective, we focus more on what it modifies -- either on a zone or a garden. The noun is better for zone work. However, Webster's unabridged dictionary defines regenerative as "tending to regenerate." This might be the better choice for gardens if the focus is on their qualities rather than on regeneration. Noun versus adjective is a question of emphasis needing thought.

Regenerative agriculture - Combines the concepts of resource efficiency, soil conservation and biological innovation. This low-input system works to first reduce soil erosion and then actually increase topsoil availability. It also implies farming practices that work more harmoniously with nature, create more farm jobs, and decentralize the food system. As a balanced, holistic approach to agriculture, it advances beyond the concept of organic methods.

Regenerative center - A locally funded and controlled enterprise undertaking and coordinating research, marketing surveys, education and other activities leading to local economic development and regeneration.

Regenerative economic improvement - Locally organized and controlled regional economic development that utilizes local resources, goods and services to meet local needs in an ecologically, technologically, socially, and economically regenerative way.

Regenerative index - Measurement tool quantifying on an annual basis actions, activities, and functions contributing to regeneration. Generates statistics revealing progress or setbacks, strengths or weaknesses in different sectors of the economy so remedial action can be taken.

Regeneration networks - Informal, loosely-connected communication linkages between individuals and groups committed to the work of regeneration in their lives and communities.

Regenerative technology - A method of producing needed goods and services while simultaneously preserving and improving the resource base and reversing environmental damage caused by energy-intensive and materials-intensive technology.

Regeneration zone - Self-defined areas in which the economy grows through the substitution of locally produced goods and services for imported ones and through the application of regenerative technologies.

Regional economy - A system of human settlement that combines several local economies into an identifiable unit. Its boundaries are determined by the interaction of human culture and natural ecology. Elements of the former include common history, customs, art and institutional structures. The latter includes topography, watersheds, wildlife, vegetation, and mineral deposits.

Regional regeneration council - An organization representing the various constituencies in a regional economy (such as government, business, labor, churches and environmental groups) interested in working together to renew the basis of livelihood for the entire region.

Remanufacturing - An industrial technology based on the principles of conservation and recycling. It restores the use-value of worn or aged equipment, machinery or tools at a lower cost than new production.

Resource abundance - An alternative concept to the traditional foundation of economic science that emphasizes the freely given, nearly limitless quantities of materials and energies for the production and distribution of goods and services. These include the regenerative properties of air, water, soil, solar energy and people.

Resource scarcity - The fundamental concept of traditional economic science which refers to the finite amounts of resources needed for economic production.

Sustainablity - The capacity of an economic or environmental system to maintain its status or arrest its degradation at a given point.

System inventories - Tabulations of in-zone natural and human resources, agricultural production, food processing, manufacturing capabilities, imports and exports, industrial resource use and needs, and regenerative technology in use or potentially usable. Necessary to determine maximum potential for import replacement and the upper limits in the Vitality Index

Transference process - The transactive or dialogue means of communicating the concept of regeneration by which the receiver of the message is at least an equal partner in its interpretation and application for a specific local or regional economy.

Vitality Index - A tool for evaluating on a year-to-year basis the overall societal health of an area relative to its regenerative potential. Measures quantities and availability of various resources, indicating key economic and social gains or losses and providing basic data on the capability for regeneration within various sectors of the economy.